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The Relationship of Sexual Health Education and Sexual Health Risk Behavioral Outcomes among Florida Teens

Brandon Moton, MPH; Rima Tawk, PhD

ABSTRACT

We examined the relationship between sexual health education and sexual health risk behavioral outcomes among adolescents in Florida using Youth Risk Behavior Survey data from 2001 to 2013. Sexual health risk behavioral outcomes (reported condom use and alcohol and/or drug use during last intercourse) were first examined as a function of sexual health education. Multiple logistic regression analysis was then used to adjust for individual characteristics and behavioral risk factors when associating sexual health education with sexual health risk behavioral outcomes. Reported condom use was strongly associated with sexual education. However, the impact of sexual education was attenuated after adjusting for individual characteristics and behavioral risk factors. Alcohol and/or drug use during last intercourse was strongly associated with behavioral risk factors: forced sex and being sad/hopeless. Those receiving sexual education were 44% less likely to use alcohol and/or drugs. The results may be of value to policy makers in helping to profile and target teens at risk for sexually transmitted infections. These findings have important sexual health education implications and shed light on the role that individual health behaviors play in the health outcomes of adolescents.

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BACKGROUND

Florida continues to lead in high numbers of unintended pregnancies and increased sexual transmitted infections (STI) and HIV infections among the 15- 24 years old age group (Advocates for Youth, 2011). In 2010, the rates of unintended pregnancies reported in Florida were 60 per 1000 as compared to the national average at the time, which was 57 per 1000 (Florida Department of Health, 2012). Florida adolescents between the ages of 15-19 account for half of newly acquired sexually transmitted infections (STIs) in the State (Florida Department of Health, 2012). Between 2009 and 2011, Florida had the most reported new cases of STIs, with most of these new cases surrounding universities and large metropolitan cities (Florida Department of Health, 2012). Moreover, half of young people ages 15-24 have STIs that have not been clinically diagnosed, possibly making them unaware of their STI status (Florida Department of Health, 2012). Nearly 10,000 teens a day are infected with STIs, which translates to about one every eight seconds (Florida Department of Health, 2012). For example, gonorrhea rates for the 15-to-24 year-old age group are at least twice as high as any group over the age of 25 (Florida Department of Health, 2012). Moreover, in 2011, Floridians ages 15-24 accounted for 70% of reported chlamydia cases.

Approximately, of all the new HIV diagnoses in the Florida occur in teens 13-24 years of age (Florida Department of Health, 2012). Young people of color and lesbian, gay, bisexual, and transgender (LGBT) youth are greatly affected in Florida's HIV epidemic and are the most at risk in the state (Advocates for Youth, 2011). For instance, the HIV rates among African-American men are four times higher than among white men (Advocates for Youth, 2011).

According to Youth Risk Behavior Survey (YRBS), 51% of Florida high school students report that they have had sex by the time they graduate, a higher figure than the national average of 46%. Of those students, 35% reported no condom use during intercourse and about 84% did not use birth control pills (Advocates for Youth, 2011). Despite Florida being ranked 1st among the states for newly acquired HIV infections among 15-19 year-olds, and 6th for teen births (SIECUS, 2012), Florida leaders continue to support the State's abstinence-only-until-marriage programs. The current law implements abstinence-until-marriage as the standard policy. Florida continues to receive funding from the Title V abstinence-only-until-marriage programs. The enactment of these programs created a shift in the dissemination of sexual education resources and ideologies (SIECUS, 2012). The shift that occurred focused on pregnancy prevention to

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promote abstaining from sexual activity outside of marriage at any age (SIECUS, 2012). Under the Title V programs through the United States Department of Health and Human Services (USDHHS), states are allocated \$50 million federal funds (SIECUS, 2012). States are then responsible to disperse the monies to sub-grantees such as schools, community-based organizations, and county and state health departments (SIECUS, 2012). The law has a strong undertone of exclusively promoting abstinence outside of marriage and programs in no way should advocate for contraceptive use or contraceptive methods expect to emphasize failure rates (SIECUS, 2012). Florida continues to have a “stress abstinence” policy according to the Florida Legislature. It is also important to point out that Florida mandates that schools teach sexuality education and HIV prevention classes; but, the effectiveness of these programs is in question (Dodge et al, 2008).

A growing body of literature supports the view that abstinence programs are ineffective in preventing teen sexual activity and teen pregnancy risk. Mathematica Policy Research group evaluated four Title V programs in different geographical areas in the United States. The behaviors that were examined were sexual abstinence, risk of pregnancy, and risk of STIs. This evaluation used an experimental design and collected follow-up data based on a four- to six-year follow-up. The study concluded that abstinence-only programs had no impact on teen sexual activity and teen pregnancy decline (Mathematic Policy Research, 2007). Kirby and Baris (2007) reviewed comprehensive sexual education programs studies. Most of those studies demonstrated that sexual education comprehensive programs were effective in delaying sexual initiation, reducing sexual partners and increasing condom or contraceptive usage. Kohler et al. (2008) examined the effect of the type of formal sex education on STI and pregnancy risk using the National Survey of Family Growth, a national dataset. They found that teens who received comprehensive sexual education had a lower risk of pregnancy than adolescents who received no sex education or abstinence only education. In addition, results also indicated that abstinence-only education did not reduce the likelihood of engaging in vaginal intercourse. Santelli et al. (2006) presented a synopsis of abstinence policies and provided an overview of their role in schools. Authors found that providing abstinence-only or abstinence-only-until-marriage messages as the only option for teenagers is ineffective. The authors concluded that schools and healthcare providers should advocate for abstinence solely as an option for

teenagers, but should not be the only basis for health policy and programs.

Florida’s youth are likely to experience negative sexual health outcomes than most teens in the United States (Advocates for Youth, 2011). Timely and informative sexual education is an important component for middle and high schools in preventing unwanted pregnancies and sexually transmitted infections (Armstrong et al., 2009). Little is known about the role of behavioral risk factors and their contribution to sexual health risk behaviors outcomes among teens.

Purpose

The purpose of this study was to provide some of the much-needed information to improve understanding of the role of sexual health education policies on sexual health risk behaviors outcomes among adolescents in Florida. In particular, our dependent variables included condom use during the last sexual intercourse, and alcohol and or drug use at the time of the last sexual encounter. In particular, we examined the influence of behavioral risk factors such as being sad and being forced into sex and the role they play in the outcomes of sexual risk behaviors.

METHODS

The Youth Risk Behavior Survey (YRBS) data was retrieved from the Florida Department of Health; Bureau of Epidemiology. The YRBS data set provides nationally representative estimates on the six types of health-risk behaviors that contribute to the leading causes of death and disability among youth and adults (Centers for Disease Control and prevention [CDC], 2015). The six health risk behaviors are unintentional injuries, tobacco use, sexual health behaviors, dietary, physical activity, and alcohol use. The YRBS uses a two-stage cluster probability sample design. The responses of the survey are weighted to be representative of Florida Public High school students. The survey does not report school and class code. This information is only used for CDC reporting purposes. The years observed were from 2001 to 2013 (odd years only) as the YRBS is a biennial survey.

This research was approved by the Florida Agricultural and Mechanical University’s institutional review board for the rights of human subjects in research.

Measures

The measures that were examined in this study included: sexual education exposure, demographic variables, and behavioral risk factors (being sad, forced into sex) as independent variables. The two dependent

variables included condom use during last sexual encounter as the first outcome variable. The second outcome variable consisted of alcohol or drugs use during last sexual encounter. Sexual education refers to the question in the YRBS: "Have you ever been taught about AIDS or HIV infection in school?" and was coded as a dichotomous variable. The demographic variables consisted of age, race, and gender. Age was treated as continuous variable. The first behavioral factor was assessed by the question "During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in row you stopped doing some usual activities?" and was coded as a dichotomous variable. The second behavioral factor of being forced into sex was measured by the question "Have you ever been physically forced to have sexual intercourse when you did not want to?" and was coded as a dichotomous variable.

Data Analysis

Data were weighed to adjust for varying probabilities of selection and non-response. All analyses were conducted using the Statistical Software, SAS 9.4. Condom use and alcohol and/or drug use during last intercourse were first examined as a function of sexual health education.

Multiple logistic regression analysis was then used to adjust for individual characteristics and behavioral risk factors when associating sexual health education with sexual health risk behavioral outcomes.

RESULTS

The adolescent population represented a weighted total of 2,287,215 (n=15, 968). Table 1 provides the descriptive statistics of our population. Study participants ranged in age from ≤ 14 years to 18. Overall, 74.7% of the population was represented by the 15-17 year-old age group (n=1,709,807). The study included Whites, Blacks, and member of other groups. Whites consisted of a bulk of the population 47.5% (n=1,064,679); Blacks, 27.8% (n=622,456); and others 24.8% (n=555,278). With respect to sex, boys were represented by 55% (n=1,256,821) and 88.8% of the overall sample received sexual education (n=1,930,610) versus 11.2 % who did not receive sexual education (n=243,024). Those who were sad made up about 31% (n=699,821) of the population. About 13% were forced into sex (n=290,488). Overall, 70% reported using condom during their last sexual encounter (n=1,337,464) and 19% used alcohol or drugs before the last encounter (n=368,710).

Reported condom use was strongly associated with sexual education (OR=1.394; 95 % CI 1.238, 1.570 $p < .0001$). However, the impact of sexual

education was attenuated after adjusting for individual characteristics and behavioral risk factors (adjusted OR [AOR] = 1.348; 95 % CI 1.176, 1.545 $p < .0001$). Table 2 presents the results obtained from multiple logistic regression analyses for the association of reported condom use with sexual education, individual characteristics and behavioral risk factors. The most significant predictors of condom use included being male (AOR=1.491; 95 % CI 1.361, 1.634 $p < .0001$). Race was another main predictor for Blacks (AOR=1.318; 95 % CI 1.166, 1.49 $p < .0001$) but not for Hispanics.

Table 1
Population Characteristics during 2001-2013

	N weighted	Percentage
Age		
≤ 14	125,339	5.7
15-17	1,709,807	74.7
18	452,069	19.6
Race		
Whites	1,064,679	47.5
Blacks	622,456	27.8
Other race	555,278	24.8
Sex		
Boys	1,256,821	55.0
Girls	1,030,395	45.0
Sex Education		
Received	1,930,610	88.8
Not Received	243,024	11.2
Sad		
Yes	699,821	30.9
No	1,566,569	69.1
Forced Sex		
Yes	290,488	12.8
No	1,972,306	87.2
Condom Use		
Yes	1,337,464	69.2
No	595,683	30.8
Alcohol/Drug Use		
Yes	368,710	18.7
No	1,600,798	81.3

Table2
Multiple Logistic Regression Models Predicting Condom Use at Last Sexual Encounter

Characteristics	Odds Ratio	LCL	ULC	p values
Sex				
Boy	1.49	1.361	1.634	< .0001
Girl	1.00			
Race				
White	1.00			
Black	1.31	1.16	1.49	< .0001
Other	0.982	0.904	1.066	.6636
Age	0.868	0.832	0.906	< .0001
Sad				
Sad	0.742	0.675	0.815	< .0001
Not Sad	1.00			
Sexual Education				
Received	1.348	1.176	1.545	< .0001
Not Received	1.00			

Table3
Multiple Logistic Regression Models Predicting Drug /Alcohol Use at Last Sexual Encounter

Characteristics	Odds Ratio	LCL	ULC	p values
Sex				
Boy	1.65	1.481	1.856	< .0001
Girl	1.00			
Race				
White	1.00			
Black	0.445	0.385	0.515	< .0001
Other	0.764	0.682	0855	
Age	0.989	0.952	1.02	< .05701
Sad				
Sad	1.35	1.22	1.512	< .0001
Not Sad	1.00			
Sexual Education				
Received	0.562	0.471	0.671	< .0001
Not Received	1.00			
Forced Sex				
Yes	2.467	2.153	2.828	< .0001
No	1.00			

Factors negatively associated with the outcome included age (AOR= 0.868; p < .0001) and being sad/hopeless. Teens who were sad were about 25% less likely to use a condom at last encounter.

Table 3 displays the association among alcohol and/or drug use during last intercourse, sexual education, individual characteristics and behavioral risk factors. Alcohol and/or drug use during last intercourse was strongly associated with behavioral risk factors: forced sex (AOR=2.467; 95 % CI 2.153, 2.828 p < .0001) and being sad/ hopeless (AOR =1.358; 95 % CI 1.22, 1.512 p< .0001). Another significant predictor included being male (AOR= 1.658; 95 % CI 1.481, 1.856 p < .0001). Those receiving sexual education were 44% less likely to use alcohol and/ or drugs. In addition, alcohol and/or drug use was negatively associated with race/ethnicity (Blacks and Hispanics (56%) and (26%) less likely as

compared to Whites respectively). However, age did not change the odds of using alcohol and/or drug use at the last sexual encounter.

DISCUSSION

We found that the most significant predictors of reported condom use included sexual education, sex, race and age. These findings are consistent with a previous study conducted by Armstrong et al. (2009) which found that demographic variables such as sex, age, and race were statistically significant with condom use during last sexual intercourse, but not sexual education.

With respect to the second outcome, the use of alcohol and drugs at last intercourse, our results were similar to those presented by Armstrong et al. (2009). Sexual education, sex, and race were statistically significant with the outcome but not age. The novel

finding with regard to the second outcome was being forced into sex. Teens being subjected to sexual violence were about 2.5 times more likely to use alcohol or drugs during their last sexual encounter. Kohler et al. (2008) indicate that denying complete and accurate information about sexual health information prevents individuals from having optimal health. They also note that formal sexual education whether comprehensive or abstinence-based plays a major role in sexual health risk behaviors among teens. Previous research suggests that the implementation of a comprehensive approach including accurate sexual prevention methods can reverse the adverse health outcomes among adolescents (Santelli et al., 2006).

Limitations

Data from the YRBS are cross-sectional, and thus, cannot be used to draw conclusions about causal factors. Our analysis was limited because the YRBS relies on self-reporting measures from teens. Florida YRBS data may not be nationally representative. The dataset is subject to recall bias due to the high number of YRBS survey questions (n=116). This method of collecting data could lead to underreporting or over reporting of questions from the survey. Furthermore, teens may have responded based on social norms. In addition, the YRBS is random and not longitudinal; therefore, students cannot be followed up to determine if their behaviors have changed. Moreover, the dataset lacked information on SES and family structure.

Implications for Public Health Practice

Sexual health education plays a vital role in sexual behavioral outcomes among teens. Our findings may be of value to school administrators, and policy makers in helping to profile and target teens at risk. Sexual health education policies are needed to target “at risk teens” by behavioral mapping which could inform decision making among adolescents, and thus, possibly curb harmful health consequences. Policymakers and health educators should implement programs for vulnerable teens, and should promote open discussions about HIV, STIs, and sexual violence. Open dialogue and inclusive awareness could improve rates of STIs among teens. This research is timely and worthwhile in addressing sexual education strategies which support curriculum development in schools.

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